

**SINGLE-CHIP AUDIO CIRCUITS, METHODS AND  
SYSTEMS USING THE SAME**

**ABSTRACT OF THE DISCLOSURE**

5 A single chip audio system 100 includes a bus  
interface 101, digital to analog converters 110, an  
analog mixer 115, and analog spatial enhancement  
circuitry 7500. Digital to analog converters 110 convert  
10 digital audio data received through bus interface 101  
into analog signals. Analog mixer 115 mixes signals  
received from digital to analog converters 110 with an  
analog signal received from an external source. Analog  
spatial enhancement circuitry 7500 enhances first and  
second mixed analog signals output from analog mixer 115.

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